FIG. 1

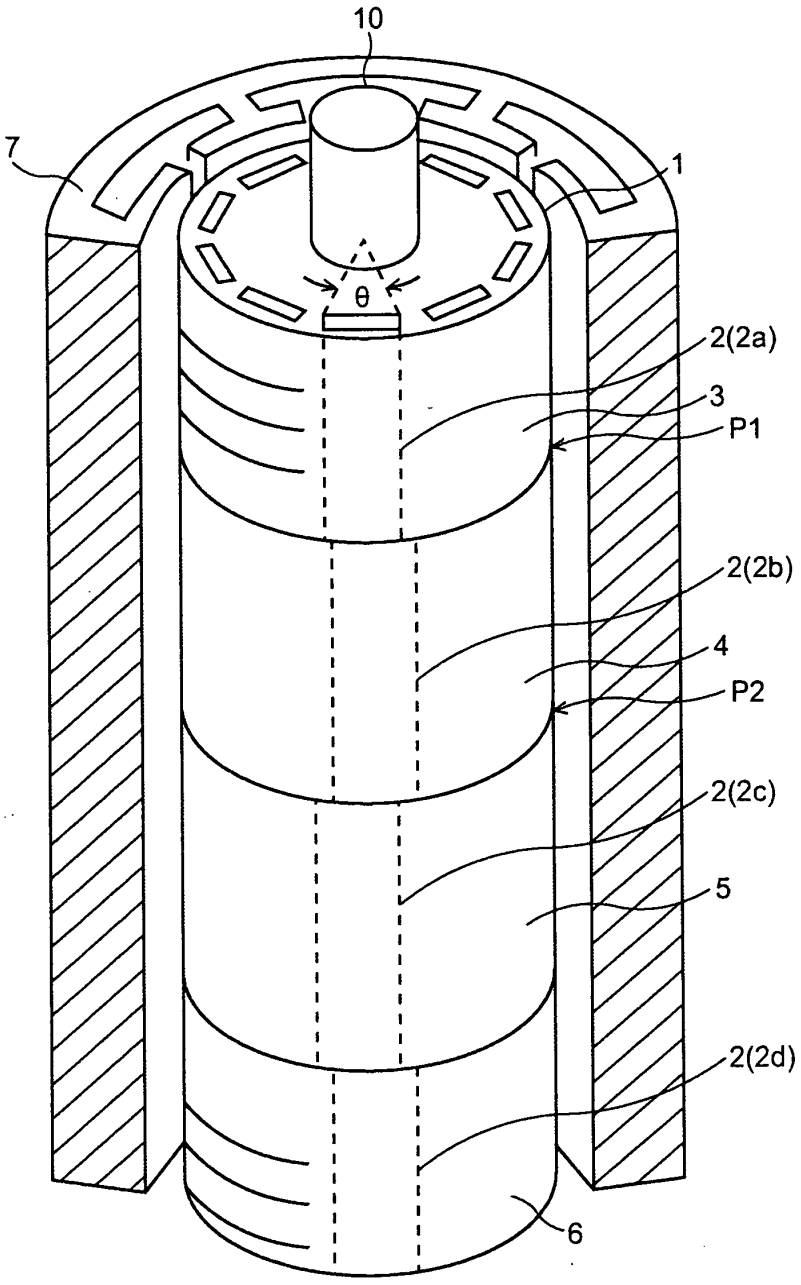


FIG. 2

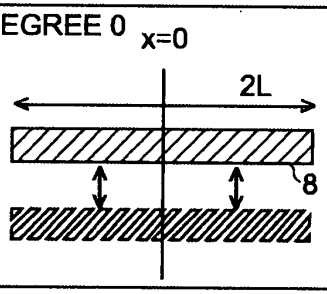
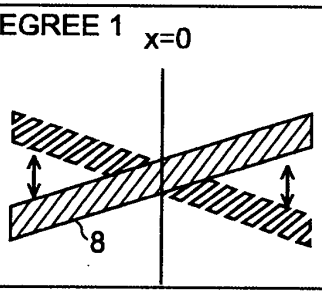
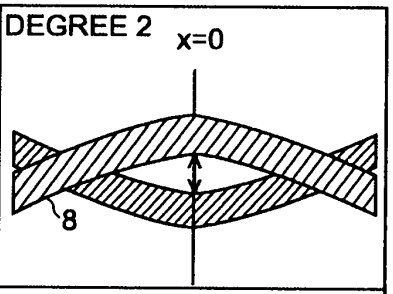
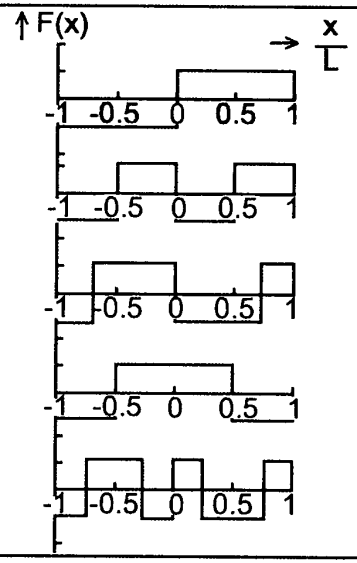
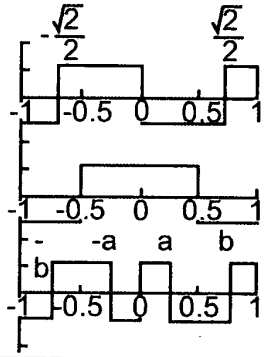
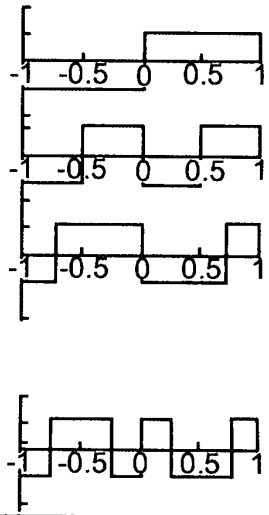
AXIAL DIRECTION MODE OF STSTOR CORE	DEGREE 0 	DEGREE 1 	DEGREE 2 
ORTHOGONAL CONDITIONS OF ELECTROMAGNETIC EXCITING FORCE	$\int_{-L}^{L} F(x)dx=0$	$\int_{-L}^{L} xF(x)dx=0$	$F(-x)=F(x)$
ORTHOGONAL EXCITING FORCE CASE A CASE D CASE G CASE H			

FIG. 3

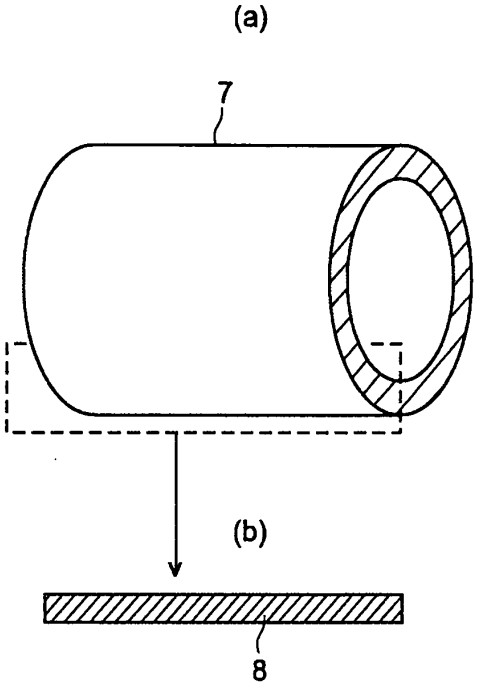


FIG. 4

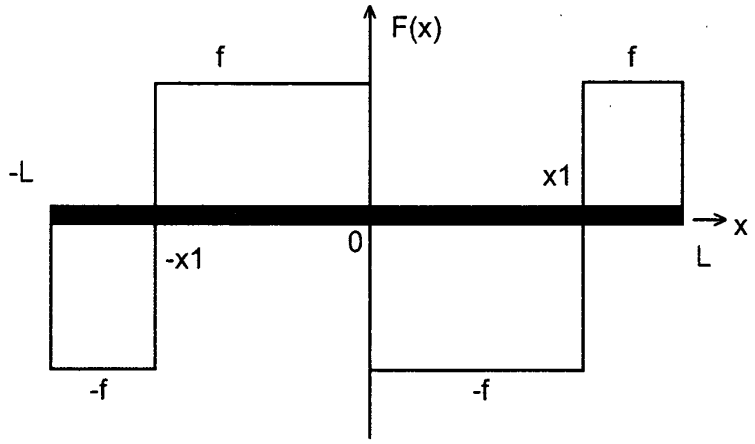


FIG. 5

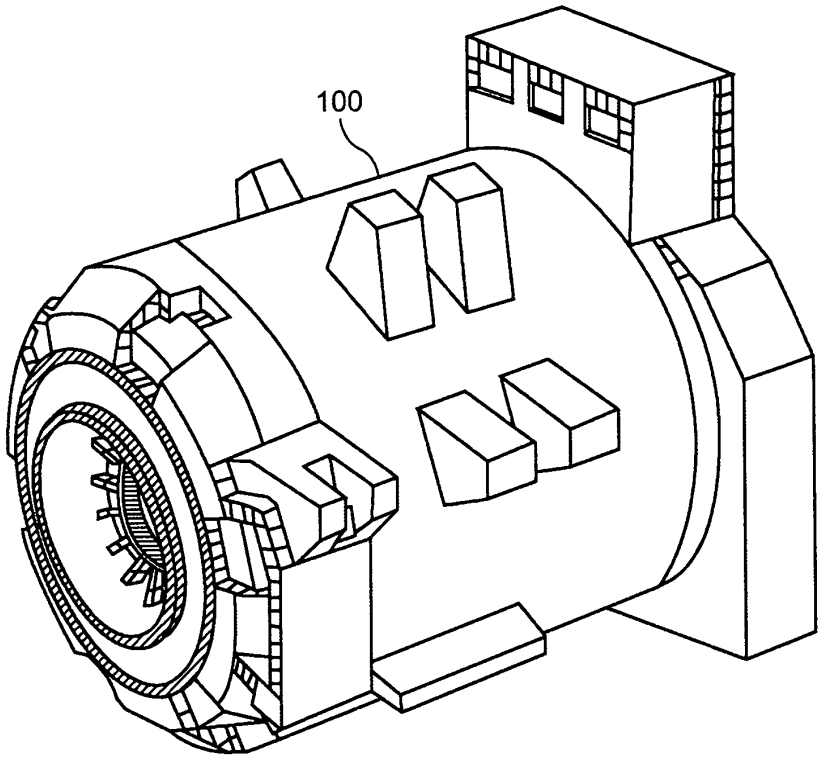

100

FIG. 6

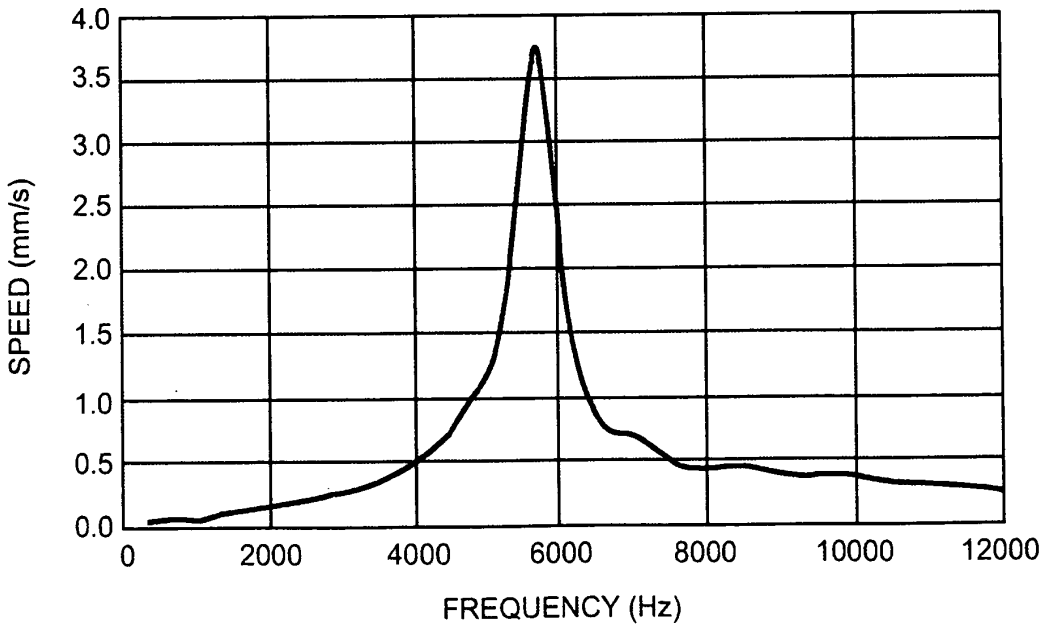

4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
SPEED (mm/s)
0
2000
4000
6000
8000
10000
12000
FREQUENCY (Hz)

FIG. 7

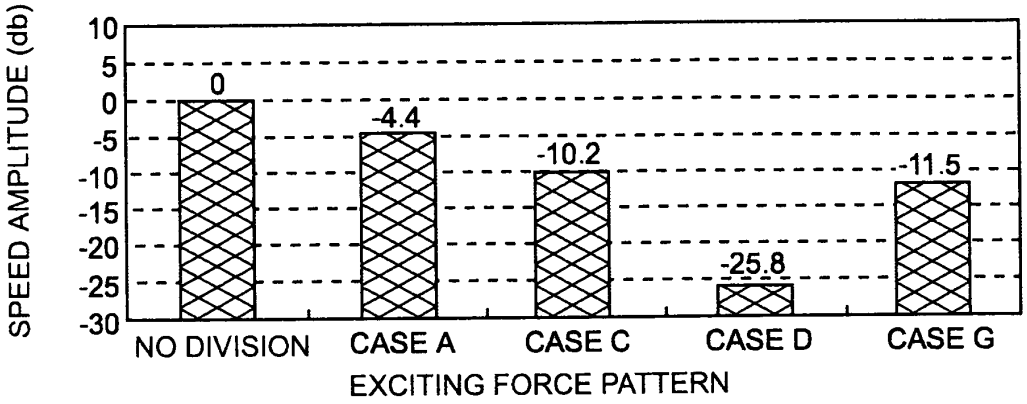


FIG. 8

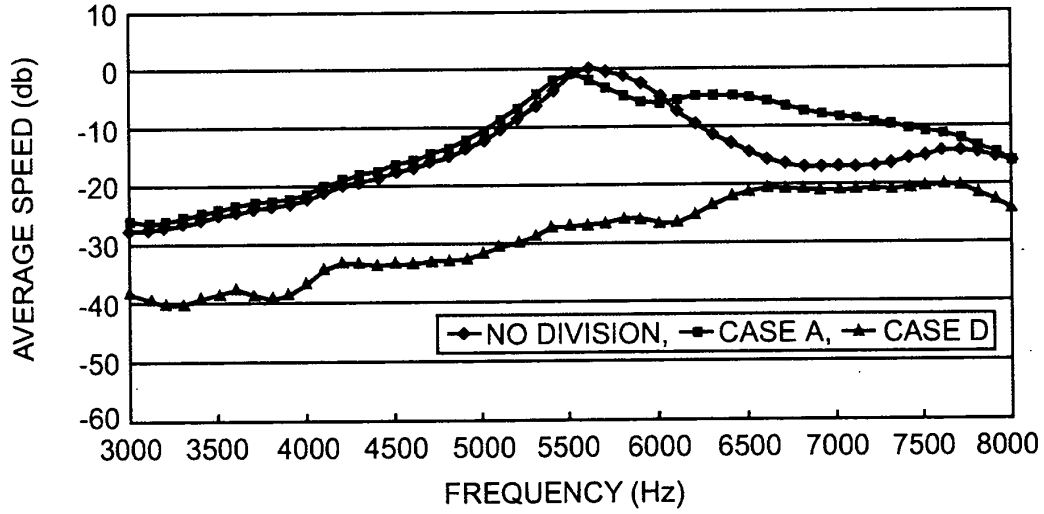


FIG. 12

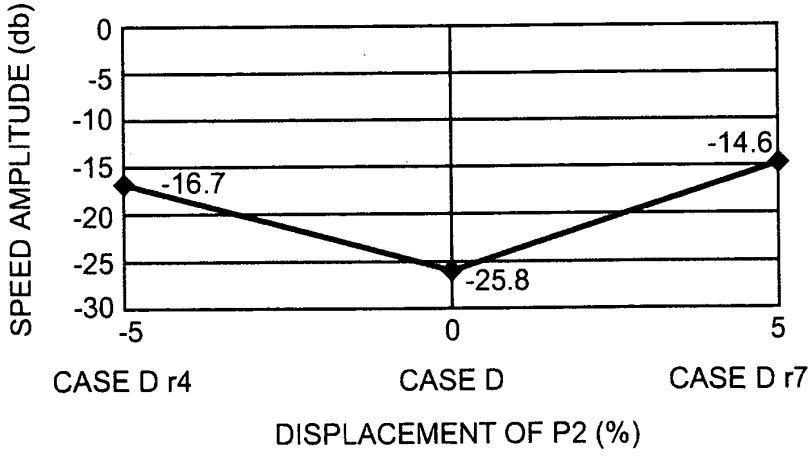


FIG. 9

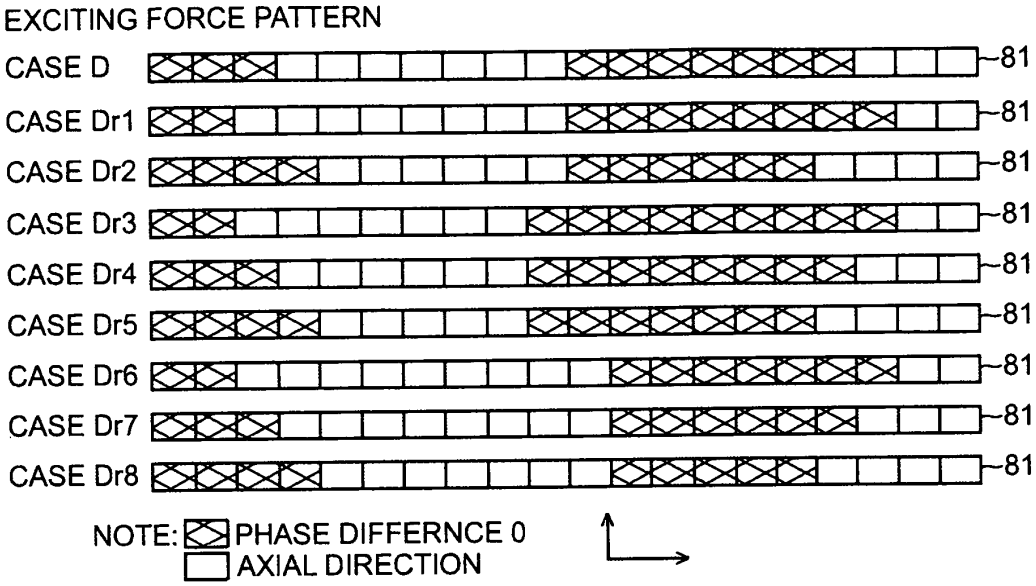

EXCITING FORCE PATTERN
CASE D
CASE Dr1
CASE Dr2
CASE Dr3
CASE Dr4
CASE Dr5
CASE Dr6
CASE Dr7
CASE Dr8
81
NOTE: PHASE DIFFERNCE 0
AXIAL DIRECTION

FIG. 11

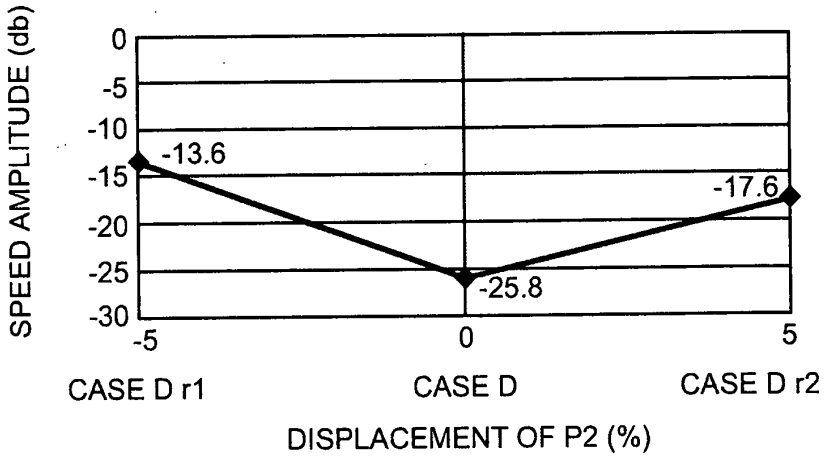

SPEED AMPLITUDE (db)
0
-5
-10
-15
-20
-25
-30
-13.6
-17.6
-25.8
-5
0
5
CASE D r1
CASE D
CASE D r2
DISPLACEMENT OF P2 (%)

FIG. 10

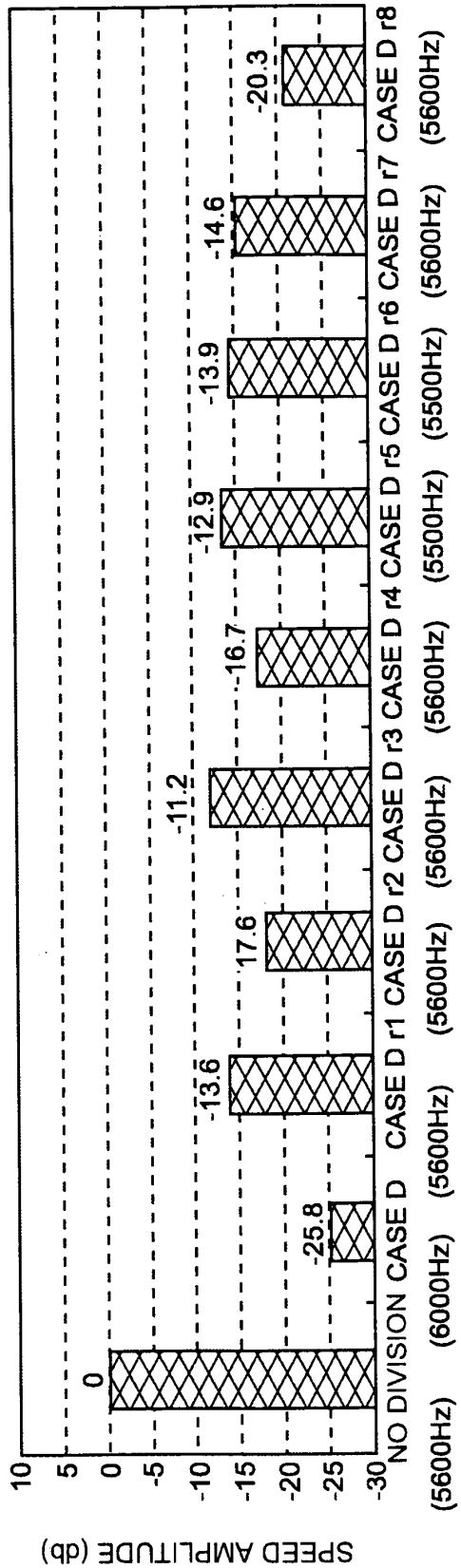

SPEED AMPLITUDE (db)
10
5
0
-5
-10
-15
-20
-25
-30
0
-25.8
-13.6
-17.6
-11.2
-16.7
-12.9
-13.9
-14.6
-20.3
NO DIVISION CASE D (5600Hz)
CASE D r1 (6000Hz)
CASE D r2 (5600Hz)
CASE D r3 (5600Hz)
CASE D r4 (5500Hz)
CASE D r5 (5500Hz)
CASE D r6 (5600Hz)
CASE D r7 (5600Hz)
CASE D r8 (5600Hz)
EXCITING FORCE PATTERN

FIG. 13

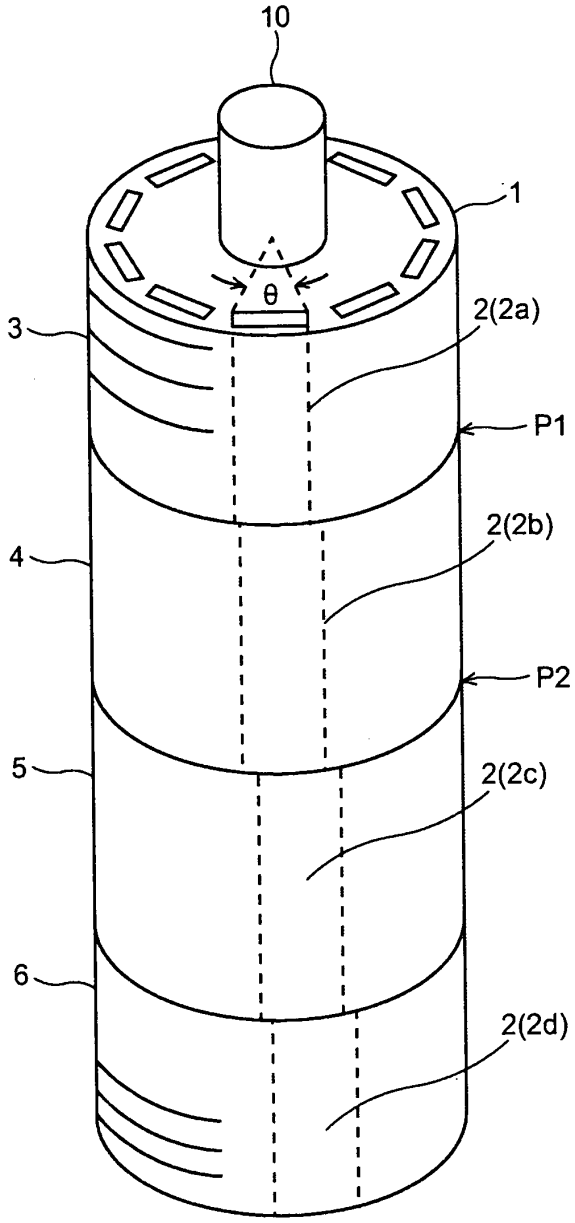


FIG. 14

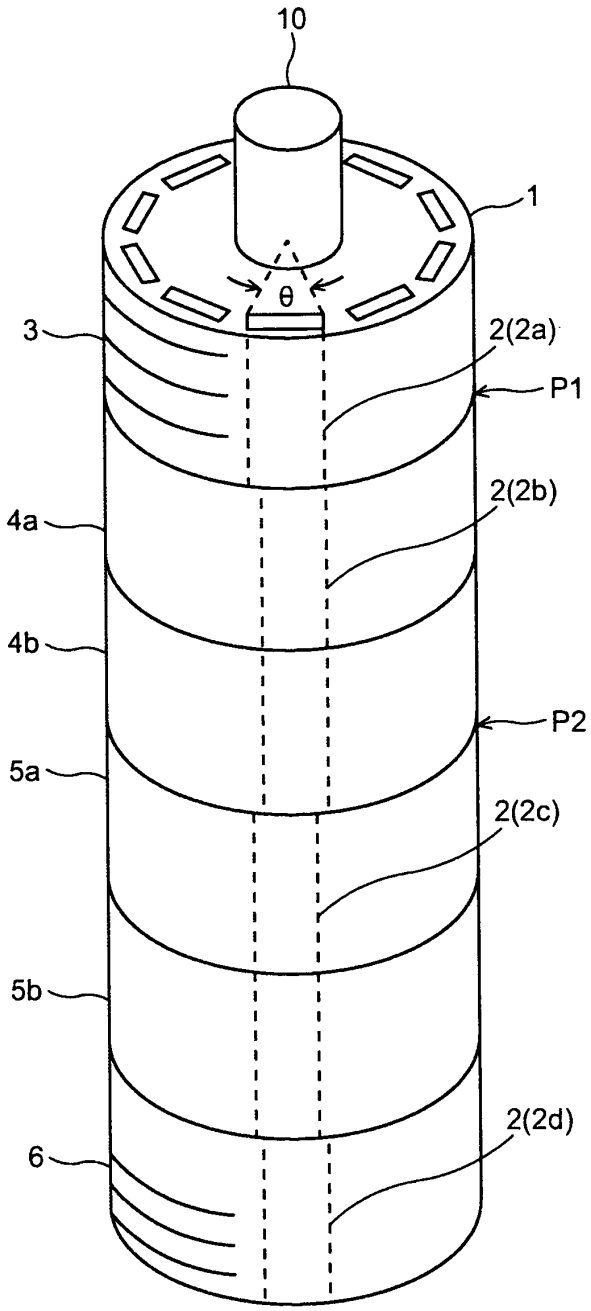


FIG. 15

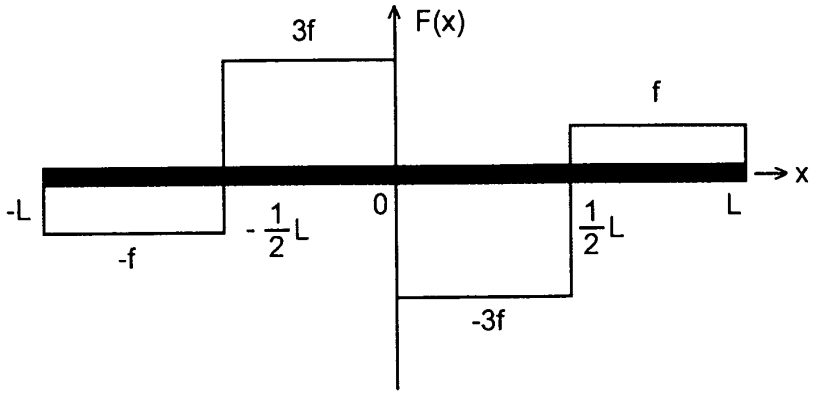

3f
F(x)
f
x
-L
0
L
-f
$-\frac{1}{2}L$
$\frac{1}{2}L$
-3f

FIG. 16

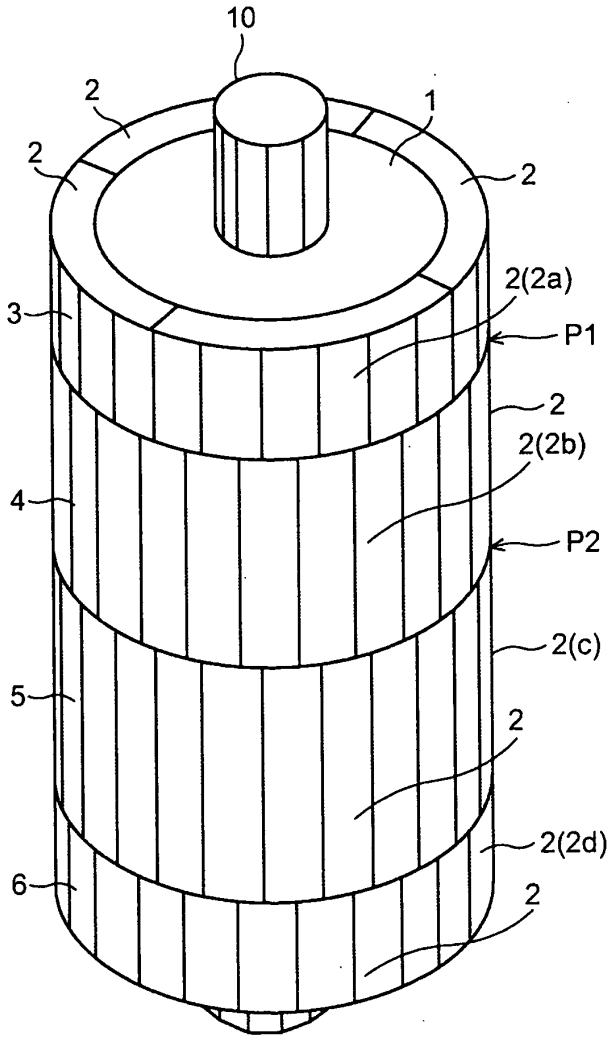

10
2
1
2
2
3
2(2a)
P1
2
2(2b)
4
P2
2(c)
5
2
2(2d)
6
2

FIG. 17

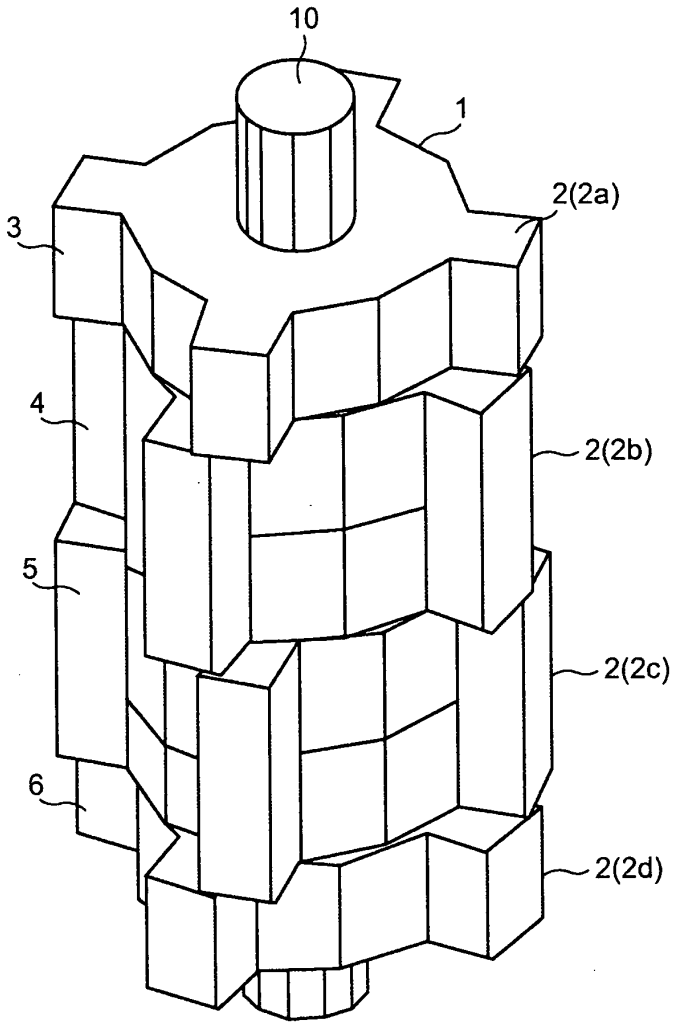


FIG. 18

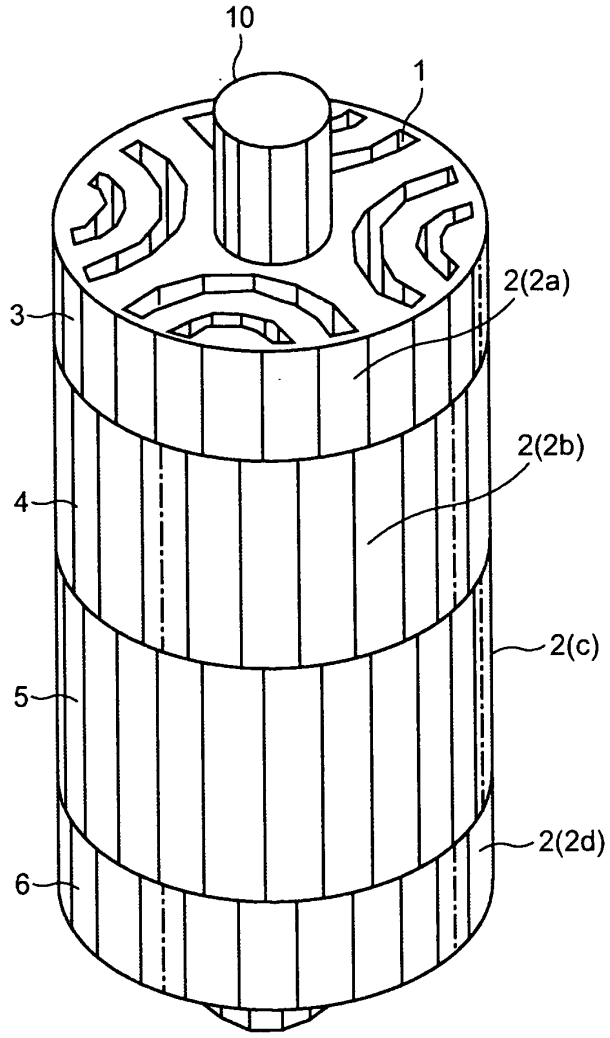


FIG. 19

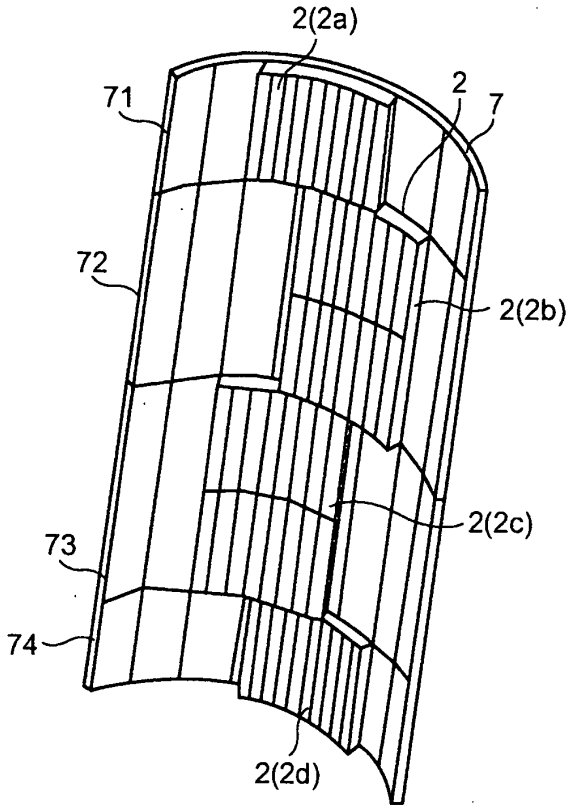
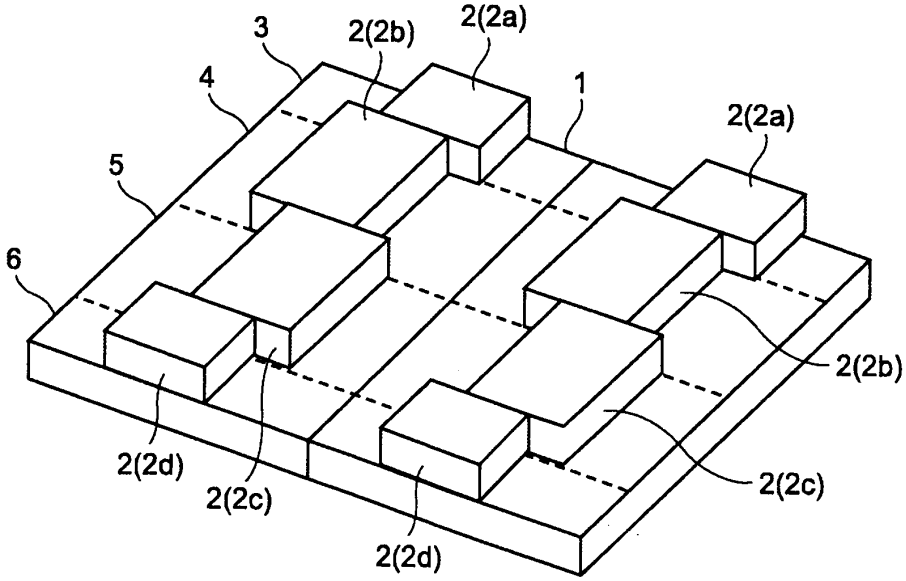

2(2a)
71
2
7
72
2(2b)
2(2c)
73
74
2(2d)

FIG. 20


3
2(2b)
2(2a)
4
1
2(2a)
5
6
2(2b)
2(2d)
2(2c)
2(2c)
2(2d)